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AND

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## Two Curious Species of Aphididae from Illinois.

BY JOHN J. DAVIS,

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(Plate VIII)

The Inconspicuous Maple Aphid (*Drepanaphis* ? *minutus* n. sp.).

This interesting little species was found rather common on the under surfaces of the leaves of hard maple (*Acer sacharum*) in a natural forest two and a half miles west of Glencoe, Illinois. The individuals appeared as dark specks on the leaves, this because of the conspicuous dark head and thorax on the pale greenish background, the abdomen being pale and rather inconspicuous. They are capable of jumping, are quite active when disturbed, and live sporadically. All of the adults found were winged.

This fall (1909) I had the opportunity, through the courtesy of Mr. J. T. Monell, of examining some aphids collected by him on a small maple (*Acer nigra* ?) near Mine LaMotte, Missouri, August 13, 1890. They proved to be identical with the species here described. Mr. Monell has kindly permitted me to use his notes which I give in full at the end of the description.

Inasmuch as my specimens were collected in a natural forest some distance from artificial plantings, and further that the Monell specimens were also collected in a natural timber, the indications are that it is a native of the United States.

This species is especially interesting because it is closely related to *Drepanaphis* Del Guercio\* and *Callipterus* Koch, and is apparently the connecting link between the two genera. The size and general appearance of the insect places it in the genus *Callipterus*, while the antennal tubercles, antennae and legs are those of *Drepanaphis*. The style and wings and its habits are characteristic of both genera, while the cornicles are intermediate.

*Winged viviparous female*—Head (Pl. VIII, fig. 1), and the thorax brownish (nearly black in old individuals), abdomen pale yellowish with a slight greenish tint. Eyes red. Ocelli conspicuous. Antennae with the two basal segments concolorous with the head, and the remaining segments whitish; set on rather conspicuous tubercles; very long and thread-like, being fully three times the length of the body; segment I stout and robust, more than twice as long and one-half broader than II; filament VI is extremely long and thread-like, and easily broken, about two and one-half times as long as III and nearly fourteen times the length of base VI; III nearly one-half longer than IV; IV and V subequal, V being invariably slightly the longer; two (occasionally one or three) comparatively large circular sensoria near the base of III, the usual one at apex of V and several at apex of base VI; the transition between base and filament of VI gradual. (Pl. VIII, fig. 2). Beak not reaching the coxae of the second pair of legs. Wings callipterous-like, hyaline, and with pale brown veins; the first and second discoidal branching at a distance varying from one-third to nearly one-half (more often the former) the distance from where the third branches to the tip of the wing; stigmal vein curved at the base, then runs straight to the margin of the wing. (Pl. VIII, fig. 3). Legs frail and entirely whit-

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\**Drepanaphis* n. g. was described by Dr. G. Del Guercio in the "Revista di Patologia Vegetale," Anno IV, no. 4, August, 1909, from specimens of the so-called *Drephanosiphum acerifolii* Thos., sent him by the writer. *Phymatosiphum* n. g. was proposed by the writer for the same genus in the Annals of the Entomological Society of America, September, 1909, not knowing of Del Guercio's description the month previous.

ish; the fore femur bears a prominent projection or tubercle near the distal end. (Pl. VIII, fig. 4). Abdomen with no dorsal tubercles. Cornicles concolorous with the abdomen, small, broadest at the base and gradually narrowing towards the apex, the opening comparatively small and the tip more or less rounded; the length about twice the breadth. (Pl. VIII, fig. 5). This form of cornicles, unknown to me in any other aphid, is a gradation between those of *Drepanaphis* and *Callipterus*. Style callipterus-like, it being knobbed but only slightly constricted near the base. (Pl. VIII, fig. 6). The anal plate is bifid. (Pl. VIII, fig. 7).

*Measurements (from specimens mounted in balsam)*—Length of body, 0.98-1.236, av., 1.1124 mm.; 0.3272-0.436, av., 0.378 mm.; length of wing, 1.78-1.999, av., 1.898 mm.; width, 0.6545-0.7272, av., 0.6908 mm.; antenna I, 0.0815; II, 0.0326; III, 0.6094-0.7072, av., 0.6452; IV, 0.3912-0.5053, av., 0.4433; V, 0.4238-0.5605, av., 0.489; VI, base, 0.0978-0.1304, av., 0.1157; VI, filament, 1.4544-1.78, av., 1.5922; average, total, 3.3995 mm.; style, av., 0.065 mm.; cornicles, av., 0.048 mm.; hind tarsus, av., 0.927 mm.

Described from 24 individuals collected at Glencoe, Ill., September 2, 1909, mounted in balsam on 8 slides. Types preserved in the Illinois State Laboratory of Natural History as Acc. No. 43,267; in the U. S. National Museum, and in the writer's collection.

*Habitat*.—Glencoe, Ill., and Mine La Motte, Mo.

Pupa entirely pale yellowish or greenish yellow, and bearing capitate hairs.

The following notes were made by Mr. Monell:

"189°-424x. *Callipterus* on maple. On small maple (*A. nigra* ?) growing on Mine creek, about 500 yards from the furnaces of Mine la Motte, Mo., August 12, 1890. Abundant living sporadic, *Callipterus* fashion. Head and thorax brownish or fuscous. Abdomen pale yellowish or usual *Callipterus* color. One winged had head and thorax like abdomen, but this one probably just acquired wings. Apterous is entirely pale greenish yellow.

"Examined slide 424x on October 26, 1908. The wings are now hyaline, not shaded, and the stigmal vein is still plainly seen its entire length. No tubercles on dorsum. Pupa with funnel-mouthed hairs on dorsum. Antennae of winged are

now very hyaline, and hard to measure, the transition between 6 and 7 very gradual. Antennal measurements as follows:

III	IV	V	VI	VII	Nectaries
0.585	0.442	0.471	0.142	0.928	0.042 mm.
0.585	0.414	0.428	0.142	1.285	mm.
				1.170	mm.

"Glycerine jelly mounts, with edges hardened with bichromate."

The Tuberculate Hickory Plant-Louse (*Callipterus caryaefoliae* n. sp.).

This characteristic aphid was found rather common on the upper surfaces, and occasionally on the under surfaces, of the leaves of hickory at Lake Forest, Illinois, June 24, 1909. It is sporadic, is very active and easily disturbed, moves about quite rapidly, and has a remarkable ability for leaping. Only winged adults were found.

The writer recently had the privilege of examining specimens of a hickory plant-louse in the collections of Mr. Monell, which proved to be the species here described. These specimens were collected by Mr. Monell on hickory at Mine LaMotte, Missouri, 18 years ago. He has kindly offered the use of his notes which I give in full at the end of the description.

It is with some doubt that I place this species in the genus *Callipterus*, which, except for the comparative length of antennal segment VI filament, might belong to Mordvilko's genus *Tuberculatus*. In Dr. Mordvilko's table\* this species runs down to *Callipterus*.

*Winged viviparous female*—Entire body, including head, velvety black or dark brownish, usually the former. Immediately after mounting in balsam the body appears brownish or light brown, and the tubercles show up as black markings. On the thorax are two small white pulverulent spots. Also on the abdomen near the anterior part are two similar white spots, and at the posterior end is a mass of white pulverulence. In addition, there were several inconspicuous dots on the abdomen. The head bears two inconspicuous tubercles on the dorsum, one on each side of the median. (Pl. VIII, fig. 8). On the prothoracic segment are two pairs of dorsal tubercles, the anterior pair being similar to that on the head and the posterior pair larger. On

\*Tables for the determination of groups and genera of Aphididæ. Ann. Rep. Zool. Museum, Imperial Acad of Learning, St. Petersburg, Vol. XIII, 1908.

each side of the abdomen anterior to the cornicles are four large, conspicuous lobes, or tubercles, which project laterally from the sides. The anterior one is smaller, and oftentimes concealed. They appear as fleshy lobes or flabellæ. Along each side of the dorsal median of the abdomen is a longitudinal row of tubercles, which tubercles are quite irregular in shape and size. The first pair, anteriorly, are conspicuous and separate; the second pair are finger-like projections, larger than the preceding pair, and joined at the base; the third pair smaller than either of the two preceding pairs, and more widely separated; fourth pair smaller, and more widely separated than the third; fifth pair, which are on the segment bearing the cornicles, are represented by almost imperceptible elevations. (Pl. VIII, fig. 9). Antennæ: Segments I and II black, the remaining segments pale brownish, excepting the distal ends of IV and V and all of VI, which are blackish; 11-19, usually 13, transverse sensoria in a row on the basal three-fourths of Segment III, and the usual ones at the tips of V and base VI; nearly or just reaching the base of the cornicles; Segment III the longest, it being one-half longer than IV, IV and V subequal, but IV invariably slightly the longer, VI about one-half the length of III, the basal portion about two-fifths longer than the filament. (Pl. VIII, fig. 10). Eyes dark red. Ocelli prominent in specimens mounted in balsam. Legs blackish excepting the middle portion of the tibiæ; the posterior femora greatly developed for jumping; the two hind femora with numerous small circular paler areas (differing from sensoria in that they are internal rather than external). Wings hyaline, veins, brownish, typical of the genus *Callipterus*, the first and second discoidals branching at about one-half the distance from where the third branches to the tip of the wing. (Pl. VIII, fig. 11). Cornicles black and tuberculate. Style of the globular type but slightly flattened as shown in the figure. (Pl. VIII, figs. 12 and 13).

*Measurements (from specimens mounted in balsam)*—Length of body, 1.49 mm.; width, 0.78 mm.; length of wing, 2.07 mm.; width, 0.86 mm.; antenna I, 0.05; II, 0.049; III, 0.3912-0.4890, av., 0.4290; IV, 0.2526-0.3260, av., 0.2835; V, 0.2282-0.2934, av., 0.2542; VI, base, 0.1141-0.1385, av., 0.1287; VI, filament, 0.0733-0.1059, av., 0.0929; average total, 1.2873 mm.; cornicles, av., 0.066 mm.; style, av., 0.09 mm.; hind tarsus, av., 0.114 mm.

Described from 9 specimens collected at Lake Forest, Ill., June 24, 1909, mounted in balsam on five slides. Types in the U. S. National Museum, in the State Laboratory of Natural History as Acc. No. 43,266, and in the writer's collection.

Type locality, northern Illinois.

Monell's notes on this species are as follows:

"195°—437x. Mainly on the upper sides of leaves, but also on the lower sides. Very abundant on many hickory trees, on hill back of the furnaces, Mine Lamotte, Mo., May 27, 1891. Exceeding quick and active, sporadic, fully as active as the maple *Drephanosiphum*. (Under 20-dia. objective of the dissecting microscope by daylight.) Winged viviparous female (3 specimens examined): Head and thorax dark brownish.

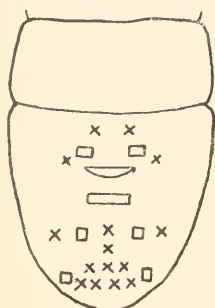


Fig. 1.

Eyes distinctly red. General fundamental color of abdomen yellowish. Markings on abdomen as in sketch, text, Fig. 1, the enclosures representing dark brown, and the crosses white pulverulent spots. There are other lesser markings. Row of tubercles near margin of abdomen, also dark brown. The front two closely adjacent white spots are on base of thorax and these, together with the inverted "T" white mark, patent to the naked eye. Apterous viviparous female (1 specimen examined): Yellowish to

greenish yellow, with four rows of longitudinal dots foreshadowing markings of the winged female. Pupa (1 specimen) same as apterous female, but wing-covers greenish.

"195°, May 30, 1891.—Resumé. To naked eyes, whole in-

"195°, May 30, 1891.—Resumé. To naked eyes, whole insect appears dusky with two small white spots at base of thorax and an inverted T-shaped white mark on abdomen under the lens. Head and thorax dark brownish. The abdomen has, for the fundamental color, brownish yellow to light brown, with the nectaries and the series of tubercles black or dark brown. The insect has a number of pulverulent spots, the principal of which are noted above. On some winged, but not all, even saw some trifling pulverulence on neck at base of head.

"Immature mites, a species of *Erythracus*, were found on the aphid."

#### EXPLANATION OF PLATE VIII.

*Drepanaphis? minutus* n. sp.: Figure 1, head; 2, antenna; 3, fore wing; 4, fore femur; 5, cornicle; 6, style; 7, anal plate; *Callipterus caryaefoliae* n. sp. 8, head; 9, body showing position of tubercles and dusky markings; 10, antenna; 11, wing; 12, style; 13, anal plate. Camera lucida drawings, figures 1, 2, 4, 5, 6, 7, 8, 12, 13, with one-inch eye piece and two-third obj.; 3 and 11 with one-inch eye piece and one and one-half-inch obj., giving a magnification a little less than one-half the two-third obj.; 9 and 10 with two-inch eye piece and two-third obj., giving a magnification slightly more than the two-third obj., with one-inch eye piece.